Computer Science

- A transforming technology that empowers almost everything we do.
- A driving force for innovation in science, engineering, business, entertainment, education, and other STEM fields..
- A strong foundation in problem solving and logical thinking is great preparation for a wide variety of STEM careers in or out of the computing field.

Why Computer Science?

- **U.S Faces a Critical Shortage of Computer Scientists**
  Homeland Security
  U.S. faces critical shortage of computer scientists
  The Business of Homeland Security
  Saturday, 24 September 2011
- **U.S. Geek Shortage is a National Security Risk**
  Defense Department
  DARPA: U.S. Geek Shortage Is National Security Risk
  January 15, 2010
- **1.5 Million High Tech Jobs Will Go Unfilled in 2012**
  Association for Computing Machinery
  "anticipated shortage of qualified candidates for the 1.5 million computer and information technology jobs by 2012"
- **Best Jobs in America**
  Rank #1 Software Architect
  Fortune Magazine, Money Magazine, CNN Money
  Survey for 2010

Computer Science at The Governor's School For Science and Technology

THE GOVERNOR'S SCHOOL for SCIENCE AND TECHNOLOGY

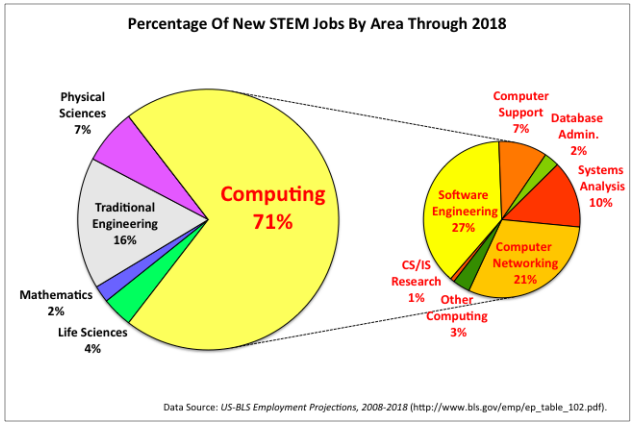
New Horizons REGIONAL EDUCATION CENTERS

Scientific Programming I

The top 10 in-demand jobs of 2010 did not exist in 2004. We are currently preparing students for jobs that do not exist yet, using technologies that have not been invented, in order to solve problems that we have yet to encounter. This is the challenge of Computer Science. Scientific Programming is not about learning to program, but about learning how to think and solve problems. It is about innovation and creativity.

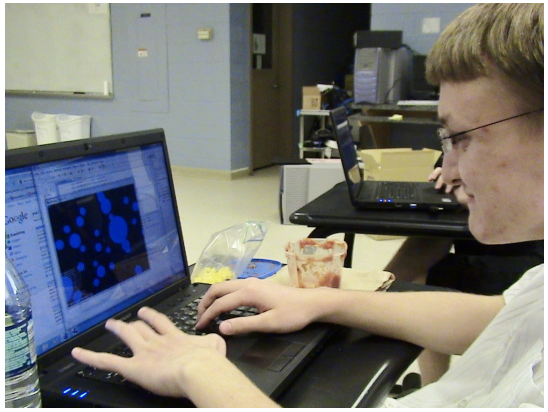
We introduce the students to Computer Science using a 2-dimensional graphical environment to create video games and run simulations. This technology utilizes the Java Programming Language. From there we move into the C and C++ Programming Languages. Scientific Programming I is one high school math credit and one high school science credit as well as seven hours of college credit in Computer Science.

Great Computer Challenge



VCU Programming Contest

Scientific Programming II



While Scientific Programming I focuses on learning programming languages and the basics of working with professional Integrated Development Environments (IDE)s, Scientific Programming II applies the skills learned to solving real-world problems.

In this course, students will utilize the technique of game based learning to implement several programming projects in Java. The projects will apply the concepts in the areas of advanced object-oriented programming, graphic user interface (GUI) development, event handling, collection classes, multithreading, networking, and java database connectivity (JDBC). Additionally, the Java programming language and open source simulators are utilized to model and simulate discrete and continuous systems in the areas of physics, chemistry, biology, earth science and computer science. Scientific Programming II is one high school math credit and one high school science credit as well as eight hours of college credit in Computer Science.